



CAIB Organizational Recommendations

R7.5-1

R7.5-2



Recommendation R7.5-1 Establish an independent Technical Engineering Authority

- **Establish an independent Technical Engineering Authority that is responsible for technical requirements and all waivers to them, and will build a disciplined, systematic approach to identifying, analyzing, and controlling hazards throughout the life cycle of the Shuttle System. The independent technical authority does the following as a minimum:**
 - **Develop and maintain technical standards for all Space Shuttle Program projects and elements**
 - **Be the sole waiver-granting authority for all technical standards**
 - **Conduct trend and risk analysis at the subsystem, system, and enterprise levels**
 - **Own the failure mode, effects analysis and hazard reporting systems**
 - **Conduct integrated hazard analysis**
 - **Decide what is and is not an anomalous event**
 - **Independently verify launch readiness**
 - **Approve the provisions of the recertification program called for in Recommendation R9.1-1**
- **The Technical Engineering Authority should be funded directly from NASA Headquarters, and should have no connection to or responsibility for schedule or program cost.**



Findings Which are the Basis for R7.5-1

- **F7.4-2**
 - Safety and Mission Assurance organizations supporting the Shuttle Program are largely dependent upon the Program for funding, which hampers their status as independent advisors.
- **F7.4-4**
 - System safety engineering and management is separated from mainstream engineering, is not vigorous enough to have an impact on system design, and is hidden in the other safety disciplines at NASA Headquarters.
- **F7.4-12**
 - The dependence of Safety, Reliability & Quality Assurance personnel on Shuttle Program support limits their ability to oversee operations and communicate potential problems throughout the organization.



Recommendation R7.5-2 OSMA Line Authority

- **NASA Headquarters Office of Safety and Mission Assurance should have direct line authority over the entire Space Shuttle Program safety organization and should be independently resourced.**



Finding Which is the Basis for R7.5-2

- Same as R7.5-1 relevant findings, plus
- F7.4-1
 - The Associate Administrator for Safety and Mission Assurance is not responsible for safety and mission assurance execution, as intended by the Rogers Commission, but is responsible for Safety and Mission Assurance policy, advice, coordination, and budgets. This view is consistent with NASA's recent philosophy of management at a strategic level at NASA Headquarters but contrary to the Rogers' Commission recommendation*.

**** NASA should establish an Office of Safety, Reliability, and Quality Assurance to be headed by an Associate Administrator, reporting directly to the NASA Administrator. This office should have direct authority for safety, reliability, and quality assurance throughout the Agency. The office should be assigned the workforce to ensure adequate oversight of its functions and should be independent of other NASA functional and program responsibilities.***